Amendments to the Specification

Please amend the specification as follows:

Please replace the first three paragraphs of the section labeled "DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT," which paragraphs begin on line 2 of page 5 and continue through line 7 of page 7 of the specification, with the following:

The hydrocyclone 10 has an inlet 12 which can be tangential or an involute, as illustrated in Figure 3. One or more inlets can be used. The incoming flow stream is exposed to a steeper outer ramp 14, as well as ~~the shallow or~~ inner ramp 16. Figure 2 better illustrates the inlet 12 and the placement of the outer ramp 14 closest to the ~~housing~~ body 18. A longitudinal axis 20 extends from the underflow ~~exit~~ outlet 22 to the overflow ~~exit~~ outlet 24. A wall 26 marks the inside of the inner ramp 16 and spirals around longitudinal axis 20 in a general direction parallel to longitudinal axis 20 in view of the fact that the body 18 is generally cylindrical in the area of ramps 14 and 16. In the embodiment illustrated in Figure 2, there are two inlets and the length of ramps 14 and 16 is generally 180°. Due to the spiraling orientation of ramps 14 and 16, they wind up radially adjacent to the opposing inlet by the time they have made a 180° turn inside the body 18. Figure 2 also illustrates the inner ramp 16 extending from the lower end of wall 26 and spiraling around in the same manner as the outer ramp 14 but at a different pitch, as illustrated in Figures 1 and 3. Accordingly, that portion of the inlet fluid which is ramped by the inner ramp 16 is ramped at a far shallower angle than the fluid which is radially furthest from the longitudinal axis 20 which is ramped by the outer ramp 14. The provision of the dual-ramp design minimizes internal turbulence within the hydrocyclone 10 and thus improves the throughput and/or efficiency of separation of a given body design. Test comparisons of an identically configured hydrocyclone for separating oil from water, having a single inner 3° ramp compared to the same design with both a 3° inner ramp

and a 10° outer ramp were undertaken. Test results indicated an increase in capacity, over a baseline hydrocyclone without such ramps, of 3% for the single-ramp design rising to 8% for the dual-ramp design without significantly affecting separation.

Referring now to Figure 3, the overflow outlet ~~50~~ 24 is depicted aligned with centerline 20. The ~~low~~ inner ramp 16 is shown transitioning to the back wall 52. Back wall 52 can be flat and in a plane perpendicular to the longitudinal axis 20, or alternatively, it can be concave looking up or concave looking down with respect to the underflow ~~connection~~ outlet 22 or overflow ~~connection~~ outlet 24. The inner ~~low~~ ramp 16 can be configured to smoothly transition into the back wall 52, or they could be at different angles, all without departing from the spirit of the invention.

Figure 4 illustrates conceptually the change in axial component velocity measured on a radial line from the inside wall of the body 18 to the longitudinal centerline 20. Figure 4 illustrates that the downward axial component is greatest along the inside of ~~wall~~ body 18 and diminishes in quantity in a downward direction until it undergoes a reversal at point 28. Thereafter, arrow 30 illustrates that a velocity increase in the opposite direction toward the overflow ~~connection~~ outlet 24 is realized. The concept behind the multiple ramp of the present invention is to mimic as closely as possible the velocity profile illustrated in Figure 4, also allowing for changes in the tangential velocity profile. This can be accomplished with two or more ramps at different grades, disposed adjacent each other and extending from the inside of body 18 to centerline 20. Rather than having discrete ramps with differing grades disposed adjacent to each other with walls spiraling generally a fixed distance from the centerline 20, the ramp of the present invention can also be designed as a continuous member which eliminates the step changes between the ramps which are taken up by wall 26, for example, as shown in Figure 2. Instead, as shown in Figure 4, the ramp 32 can have a steeper gradient adjacent the inner wall of body 18 and a shallower gradient toward the centerline 20, yet be composed of a more unitary